Watershed Characterization Methods and SR 522 Test Case
Preliminary Recommendations and Lessons Learned

Preliminary Recommendations:

- ***Beta-test methods on an urban or urbanizing transportation project in 2003.***
- ***Begin integrating lessons learned from watershed characterization into policy documents.***

General Lessons Learned:

- ***While the SR522 project is taking untested concepts and putting them into action, there is substantial work that needs to be done to refine methods.***
- ***An interdisciplinary technical team is essential to development, assessment, and interpretation of watershed characterization tools.***

  Reid (1993) recognized the need for an interdisciplinary team to develop an interdisciplinary understanding of watersheds and watershed processes. The SR522 test case and past work by Ecology (Gersib et al. 1999) support Reid's conclusion. We recommend that a hydrologist, a hydrogeologist, a landscape ecologist, a fisheries biologist, a water quality specialist, and a GIS analyst serve as the core technical team.

- ***Adequate GIS support is needed to complete watershed characterization projects.***

  Landscape-scale assessment requires the compilation, manipulation, and analysis of large spatial data sets. The pace of work is frequently determined by the availability of maps. This dictates that an experienced GIS analyst and technicians function as part of the technical team.

- ***The most efficient way to develop and evaluate methods that assess and mitigate transportation impacts is to have key permitting agency staff work directly on the technical team.***

  Stormwater and ESA policy issues between WSDOT and permitting agencies dictate that the interdisciplinary technical team include key WSDOT, Ecology, NOAA-fisheries, and US Fish and Wildlife policy peers as well as local governments. In the SR522 test case, the technical team struggled to balance the different policy positions of WSDOT and permitting agencies. Substantial discrepancy in policy positions impeded and in one case, precluded methods development. We learned that this situation consistently put the technical team in conflict with someone's policy position.

- ***Local coordination is intrinsic to the watershed characterization process and needs to begin early in the process.***

  Watershed groups organized under Washington's Watershed Planning Act and Salmon Recovery Act as well as other types of locally organized watershed groups develop important data sets that can be used in the characterization process. They also develop prioritized lists of restoration needs which can be used in identifying potential mitigation sites.

- ***Watershed characterization concepts/tools need to be integrated into existing policy.***

  Watershed characterization represents a significant departure from how WSDOT compiles information for NEPA/SEPA compliance and selects mitigation options. Integrating these concepts/methods into the policies of the permitting agencies increases the likelihood that this tool will be used. For watershed characterization to be successful internally, WSDOT needs to provide necessary funding, technical staff, and regional office support.

- ***Non-project funding sources will be needed to complete watershed characterization.***

  To facilitate watershed characterization five or more years in advance of a transportation project, or the characterization of entire watersheds in advance of transportation improvements, funding from non-project sources is crucial.

Specific Lessons Learned:

- ***It is essential that watershed characterization includes surface water/ groundwater interactions.***
- ***Current land use/land cover data are essential to watershed characterization.***

  Data sets may be available that were developed by local government, state government, or private consultants; in rare cases, development of new data sets will be needed.

- ***Appropriate spatial scales for watershed characterization depend on landscape position of a project and surrounding land use.***

  A product of additional test cases should be recommendations on appropriate spatial scales for watershed characterization.

- ***There is substantial need to develop a watershed characterization screening tool.***

  This tool can be applied to the six-year transportation plan to evaluate and identify watersheds and projects that could benefit most from watershed characterization.

- ***WSDOT staff should play a cooperative role in local watershed planning.***

  While staffing constraints would not allow WSDOT to become involved in all watershed activities in the state, some involvement by staff from the Watershed Program of WSDOT's Environmental Affairs Office is important in watersheds where substantial transportation projects are planned.

- ***To minimize financial risk to WSDOT, policy guidelines should be developed regarding mitigation in advance of project funding.***

  There is added risk associated with mitigating transportation impacts prior to the transportation impacts occurring. There are also added natural resource benefits to having mitigation completed prior to project impacts occurring. As methods are refined and permitting agencies gain confidence in the mitigation options developed, policy guidelines for advanced mitigation will need to be developed to minimize WSDOT risk.